REMARKS

Claims 37 and 38 are canceled herein, and claims 36 and 88 are amended. Support for the amendment of claim 36 is found in the specification at page 9:3-11. Further, new claims 99 and 100 are introduced, which are based on claims 36 and 88, respectively, with the further limitations of claims 37, 82 and 96 included. No new matter has been introduced by these amendments. The present claims at issue are 36, 39-61, 63-78, 81-93 and 95-100.

To the extent that applicants were able to decipher the examiner's writing in the Advisory Action of May 30, 2002, they understand that the rejections of record have been maintained, that the arguments set forward in the April 18, 2002 reply were unpersuasive, and that the proposed amendments were deemed to introduce further grounds for rejection under 35 USC §112, ¶2. In formulating the following remarks, applicants will hopefully address all of the examiner's concerns to his satisfaction. If the examiner's arguments from the Advisory Action are misrepresented here, applicants extend their apologies, and request that such be set forward more clearly in the future.

INCORPORATION BY REFERENCE

The paragraph found on page 7:15-24 now incorporates the US and WO patent numbers for V8vEGTDEL-AaIT and AcMNPV Px1. Such incorporation by reference is proper, as is the incorporation by reference of a pending US patent application. Applicants refer the examiner to the reply submitted April 18, 2002 for further

discussion of this point.

REJECTION UNDER 35 USC §112 ¶2

Use of the abbreviations DNA and RNA is appropriate and clear in the present claims, and claim 66 is therefore not indefinite under 35 USC §112 ¶2. A claim is definite if one skilled in the art would understand the claim's scope when it is read in light of the specification and the prior art. This has been set forward in numerous Federal Circuit decisions (*see, e.g., Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 27 USPQ2d 1123 (Fed. Cir. 1993), *cert. denied*, 510 U.S. 1100 (1994); *Morton International, Inc. v. Cardinal Chemical Co.*, 5 F.3d 1464, 28 USPQ2d 1190 (Fed. Cir. 1993), *on remand from*, 508 U.S. 83, 26 USPQ2d 1721 (1993)).

The degree of precision required by §112, ¶2 varies according to the particular invention, the nature of the subject matter, and the compliance of the specification with §112. (*See Miles Laboratories*, 997 F.2d 870, 27 USPQ2d 1123; *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 225 USPQ 634 (Fed. Cir. 1985)). To quote the Federal Circuit, claims need only "reasonably apprise those skilled in the art" as to their scope and be "as precise as the subject matter permits" (*Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1985).

In the particular claim at issue, the purportedly offending abbreviations, DNA and RNA, describe viral pathogens suitable for use in the claimed process. It is commonly understood that DNA and RNA refer to deoxyribonucleic acid and ribonucleic acid,

respectively. Support for this assertion can be found in the appended copies of various dictionary entries for the abbreviation DNA. Each of these entries indicates that DNA is commonly understood to be an abbreviation for deoxyribonucleic acid. None indicates any other possibility for this abbreviation.

Furthermore, as indicated above, the abbreviations DNA and RNA modify the word "virus" in the present claims. Deoxyribonucleic acid and ribonucleic acid are commonly understood to be the means through which living organisms replicate and/or produce protein products, and viruses are commonly categorized based on which of these two types of molecules they utilize. Writing out the terms "deoxyribonucleic acid" and "ribonucleic acid" would be redundant to one of skill in the art in the present situation, where "DNA" and "RNA" indicate different types of viruses.

The examiner appears to assert that one of skill in the art would mistakenly interpret the abbreviation DNA to refer to "DiNitro Aniline" (office action of January 18, 2002, p.2). However, applicants respectfully point out that "DiNitro Aniline" viruses do not exist. The possibility of such a misinterpretation is remote, at best, and when reading in light of the prior art, one of skill in the art would understand "DNA" and "RNA" to mean deoxyribonucleic acid and ribonucleic acid. Applicants respectfully request that this rejection be withdrawn.

The present amendments to claims 36 and 88 are not indefinite under 35 USC §112, ¶2. Words of degree in claims are not indefinite if the specification provides a standard for measuring that degree (*Seattle Box Co., Inc. v. Industrial Crating &*

Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984), *later appeal*, 756 F.2d 1574, 225 USPQ 357 (Fed. Cir. 1985)). In the presently amended claims, the phrase "well below" is accompanied by the standard "that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts" (amended claims 36 and 88). Applicants submit that this recitation meets the requirements set forward by the Federal Circuit for definiteness in claim drafting.

REJECTIONS UNDER 35 USC §102

RHEAUME (US 5,560,909)

The present claims include limitations not described in Rheaume, and therefore cannot be anticipated by this reference. To anticipate, a reference must teach every element of a claim, in the arrangement required by the claim, and in as complete detail as recited in the claim. (*In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987)).

Rheaume teaches a process which

> comprises contacting a suitable ingestible biological insecticide with a suitable *charged* polymer in an aqueous medium, [and] modifying the charge of the *charged* polymer to cause precipitation of the polymer ... .

(col.2:54-58, emphasis supplied.) The "suitable charged polymers" of Rheaume are those

> having the capability of existing in solution or as a dispersion in an aqueous phase and which precipitate from the aqueous phase when the charge is modified.

(col.3:7-9.) When actually employed in the disclosed process, the "charged polymers"

> contain functional groups which are predominantly in the acid [or base] form, or as a salt of an acid [or base], or as combinations of the acid [or base] and salt forms.

(col.3:16-30.) Further,

> The number or quantity of functional groups on the charged polymer is only important insofar as the charge *allows the polymer to be dispersed in an aqueous medium or in solution in an aqueous medium* ... .

(col.3:66-col.4:2, emphasis supplied.)

Consolidating the above points from Rheaume, it is apparent that the process disclosed therein requires mixture of an insecticide with a *dissolved or dispersed* polymer, i.e., one having a sufficient number of functional groups in the acid/base and/or salt form. Only *after* such a solution or dispersion is obtained is the charge "modified" again, to cause precipitation of the polymer (col.4:52-55).

As indicated in the present specification, preparing coated pesticides in this manner leaves some functional groups charged in the final product, which lowers the pesticides' effectiveness (p.2:10-24). In addition, it is a specific aim of the present invention to *avoid* converting a substantial number of free carboxylic acid functional groups to their acid form. The benefit of this difference in processes is that the active ingredients retain a higher percentage of activity when compared with those prepared in the Rheaume process (p.4:3-13).

Claim 36 recites a process in which a pesticidal agent, a pH-dependent polymer and a base are combined in an aqueous mixture, with the "pH [being] *less than the polymer's solubilization pH*" (claim 36, emphasis supplied). With the pH held below this level, insufficient functional groups are converted to their acid functionalities for the polymer to be dissolved. Accordingly, the polymer is in the "modified" form described in the *second* part of the Rheaume process, i.e., where the polymer precipitates out of solution.

The process according to Rheaume *requires* that the aqueous polymer mixture attain a pH sufficiently high to solubilize the polymer, i.e., a pH *above* that of the solubilization pH of the polymer. The present claims *require* that the pH remain *below* the solubilization pH of the polymer. Accordingly, the disclosure of Rheaume *does not* teach the identical process defined in the present claims. Though the examiner asserts that the polymer in Rheaume may be only partially solubilized, the clear disclosure of Rheaume is that "the majority of the functional groups will be in the acid [or base] form and/or as a salt of an acid [or base]" (col.3:19-21). Furthermore, the amount or number of functional groups charged as acid or base *must* be sufficient to disperse or place the polymer in solution in the aqueous medium (col.3:66-col.4:2). Rheaume makes no concession for *partial* dissolution or dispersion of the polymer *anywhere* in the process description.

The criticality of this difference is asserted in the specification, as has been indicated above. Avoiding the conversion of free carboxylic acid groups to the acid or

salt form produces a product which is substantially more resistant to damage from UV radiation (p.4:3-13). The examiner has provided no evidence that one of skill in the art would doubt the objective truth of this statement or dispute the validity of the present examples.

The process of the present invention is defined clearly, and objectively there can be no overlap with the disclosure of Rheaume. The examiner's assertion that the "ambiguous" and "relative" language used in claim 36 allows the disclosure of Rheaume to read on the present claims is unfounded. As indicated above, claim 36 requires an aqueous mixture of polymer and pesticide having a pH *below* the solubilization pH of the polymer, whereas Rheaume *requires* that the pH be *above* the solubilization pH of the polymer. The claim language is clear and precise on this point, and the phrase "partially solubilized" does *not* suggest or give room to cover the degree of solubilization *required* by Rheaume, in view of the express language in the claim that the mixture's pH is to be kept *below* the polymer's solubilization pH.

Further, the examiner has given no citation from the patent statute, regulations or case law in support of the asserted "virtual §102" rejection (advisory action). This "virtual §102" rejection stretches the line clearly demarcated by the present claims, and is at best an obviousness rejection without any assertion of suggestion, motivation or reasonable expectation of success. Applicants respectfully request that the rejection of claims 36-44, 46-48, 52-54, 56, 60, 61, 63-70, 84, 87-89, 92, 93 and 95-98 as anticipated by Rheaume under 35 USC §102(e) be withdrawn.

FAKHRUDDIN (EP 0 697 170 A1)

The present claims include limitations not described in Fakhruddin, and therefore cannot be anticipated by this reference. To anticipate, a reference must teach every element of a claim, in the arrangement required by the claim, and in as complete detail as recited in the claim. (*In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987)).

Fakhruddin teaches two different processes, neither of which is the presently claimed process. The first process is one in which a pH-dependent polymer, a pesticidal agent and a UV protector are combined *in an organic solvent*, producing a homogenous suspension which is then dried (p.3:14-24). The second process is one in which an aqueous mixture of a pH-dependent polymer is treated with a base to raise the pH of the mixture to between 8.5 and 10. A pesticidal agent and a UV protector are then added to the mixture, and the resulting homogenous suspension is then dried (p.3:32-45).

Neither of these processes teaches the aqueous mixture of a pesticide and a pH-dependent polymer, *where the pH is held below the solubilization pH of the polymer.* This key difference, as has been indicated above and in the specification, results in final pesticidal products that are more resistant to UV radiation than either of the products produced according to Fakhruddin. Applicants refer the examiner to the above

discussion of the Rheaume rejection, which applies in substance to the present rejection utilizing Fakhruddin.

The examiner asserts that example 1 of Fakhruddin, with minor modification, is identical to the present specification's example 2 (office action p.5). Applicants respectfully disagree with this assessment. In example 1 of Fakhruddin, sufficient base is added to an aqueous mixture of a pH-dependent polymer and PEG to reach a pH level of 9.4 (p.6:7-9). A pesticide is then added, and the resulting solution is allowed to dry (p.6:9-12). In example 2 of the present invention, the amount of base added to the aqueous mixture of polymer and pesticide is not indicated. However, according to the present claims, this amount *must* be insufficient to raise the pH above the solubilization pH of the polymer. Accordingly, the two processes differ in this key respect.

Applicants respectfully request that the rejection of claims 36-61, 63-69, 71-75, 81-93 and 95-98 as anticipated by Fakruddin under 35 USC §102(b) be withdrawn.

REJECTIONS UNDER 35 USC §103

MILLER (US 5,662,891) IN VIEW OF RHEAUME ET AL (US 5,560,909)

Miller and Rheaume, when combined, do not teach all elements of the presently claimed invention, and give no suggestion, motivation or reasonable expectation for success in modifying their disclosures. Such expectation, motivation, suggestion and teaching of all elements is necessary to establish *prima facie* obviousness. (*See, e.g., In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Vaeck*, 947 F.2d

488, 20 USPQ 1438 (Fed. Cir. 1991); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).)

As indicated above, Rheaume requires that the pH of the pertinent aqueous mixture be raised above the solubilization point of the polymer. Miller also discloses this requirement. The preferred composition of that disclosure is formulated, in part, by creating an aqueous suspension of a pH-dependent polymer, and "dissolving [this polymer] by [raising] the pH of the suspension ... to 9.0 to 9.5" (col.6:5-6). To *dissolve* the polymer, it is necessary for the pH to be raised *above* the solubilization pH of the polymer. This is contrary to the presently claimed invention. As neither reference teaches retaining the pH *below* the solubilization pH of the polymer, and as no suggestion is made of this requirement, applicants submit that claims 36-61, 63-78, 81-93 and 95-98 are not obvious over Miller in view of Rheaume, and request that this rejection be withdrawn.

BOHM ET AL (US 4,948,586) IN VIEW OF RHEAUME ET AL (US 5,560,909)

Bohm and Rheaume, when combined, do not teach all elements of the presently claimed invention, and give no suggestion, motivation or reasonable expectation for success in modifying their disclosures. Such expectation, motivation, suggestion and teaching of all elements is necessary to establish *prima facie* obviousness. (*See, e.g., In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Vaeck*, 947 F.2d 488, 20 USPQ 1438 (Fed. Cir. 1991); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231

USPQ 375 (Fed. Cir. 1986).)

In example 1 of Bohm, asserted by the examiner to be identical to the present claims, malachite green hydrochloride is added to a polymer dissolved in PEG. A first aqueous solution of a pesticide is added to this mixture, and the resulting solution is emulsified. A second aqueous solution of dissolved surfactants is then added, and again the resulting solution is emulsified (col.7:45-col.8:1). In the presently claimed process, an aqueous mixture of a polymer and a pesticide is created, with the pH of the mixture being held *below* the solubilization pH of the polymer. Bohm requires *dissolution* of the polymer, in contrast to the examiner's inference concerning the tackiness of the final product, and thus teaches away from keeping the polymer only partially solubilized.

As has been set forward above, Rheaume requires that the mixture pH be sufficient to solubilize the polymer. This, again, teaches away from the presently claimed process. Applicants respectfully submit that neither Rheaume nor Bohm suggests the presently claimed invention's elements, and that the criticality of these additional elements and the corresponding unexpected results have been asserted in and supported by disclosure in the specification. Accordingly, applicants respectfully request that the rejection of claims 36-61, 63-78, 81-93 and 95-98 under 35 USC §103(a) over Bohm in view of Rheaume be withdrawn.

FAKHRUDDIN (EP 0 691,170) IN VIEW OF RHEAUME ET AL (US 5,560,909)

Fakhruddin and Rheaume, when combined, do not teach all elements of the presently claimed invention, and give no suggestion, motivation or reasonable expectation for success in modifying their disclosures. Such expectation, motivation, suggestion and teaching of all elements is necessary to establish *prima facie* obviousness. (*See, e.g., In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Vaeck*, 947 F.2d 488, 20 USPQ 1438 (Fed. Cir. 1991); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).)

Applicants refer the examiner to the discussion of Rheaume and Fakhruddin set forward above. As each of the processes disclosed therein *requires* solubilization of the pH-dependent polymer, they both teach away from the presently claimed process. Applicants respectfully submit that the present claims are not obvious over Fakhruddin in view of Rheaume, given the fact that neither discloses or suggests the present claim limitations.

CONCLUSION

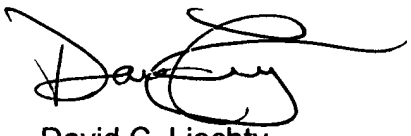
In view of the foregoing amendments and remarks, applicants consider that the rejections of record have been obviated and respectfully solicit passage of the application to issue.

A check to cover the RCE and two month extension fees is attached to the RCE transmittal page filed herewith.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,

KEIL & WEINKAUF



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

Amend the paragraph on page 7, lines 15-24, as follows:

AcMNPC E2 is described in EP 621337, and co-pending U.S. Serial No. 08/009,264, filed January 25, 1993, which is incorporated herein by reference. AcMNPV V8 and V8vEGTDEL are described in U.S. Patent 5,662,897 which is incorporated herein by reference. V8vEGTDEL-AalT is described in EP 697170-A1 and co-pending U.S. Serial No. 08/322,679, filed July 27, 1994, now US Patent 5,965,123. AcMNPV Px1 is described in co-pending provisional U.S. Serial No. 60/084,705, filed May 8, 1998, WO 99/58705 which is incorporated herein by reference.

IN THE CLAIMS

Please cancel claims 37 and 38.

Please amend claims 36, 65, 67 and 88 to read as follows:

36. (three times amended) A process comprising

(a) preparing an aqueous mixture containing a pesticidal agent, a pH-dependent polymer, a base, optionally a plasticizer, optionally an ultraviolet protector, optionally an activity enhancer, optionally a glidant, and water;

wherein the polymer

(1) contains ester groups and free carboxylic acid groups,

(2) is partially solubilized due to the action of the base, and

(3) has solubilization pH greater than about pH 5.5;

wherein the amount of base added is well below the amount required to fully solubilize the copolymer such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts;

wherein the mixture's pH is less than the polymer's solubilization pH; and

(b) drying the mixture to produce a pesticidal matrix.

65. (twice amended) A process as described in claim 64, wherein the insect biological control agent is selected from the group consisting of a viral pathogen, a bacterial pathogen, a fungal pathogen, and mixtures thereof.

67. (amended) A process as described in claim 66, wherein the viral pathogen is [in] a DNA virus selected from the group consisting of a double stranded enveloped DNA virus, a double stranded nonenveloped DNA virus, a single stranded DNA virus, and mixtures thereof.

88. (four times amended) A pesticidal matrix comprising on a percentage-weight-basis of the matrix, from about 1% to about 50% of a pesticidal agent, from about 5% to about 50% of a pH-dependent polymer, from about 0% to about 25% of a plasticizer, from about 0% to about 30% of a ultraviolet protector, from about 0% to about 75% of a

activity enhancer, and from about 0% to about 15% of a glidant; wherein the polymer contains ester groups and free carboxylic acid groups, is partially solubilized due to the action of a base, wherein the amount of base added is well below the amount required to fully solubilize the copolymer, such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts, and wherein the polymer has a solubilization pH greater than about pH 5.5.

Please enter new claims 99 and 100, which read as follows:

99. (newly added) A process comprising

(a) preparing an aqueous mixture containing a pesticidal agent, a pH-dependent polymer, a base, optionally a plasticizer, optionally an ultraviolet protector, optionally an activity enhancer, optionally a glidant, and water;

wherein

(A) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/ methyl methacrylate copolymer having monomers in a ratio of from about 1:5:2 to about 3:7:3, and mixtures thereof;

(B) the plasticizer is selected from the group consisting of triethyl citrate and a poly(ethylene glycol) having an average molecular weight of about 1,000

to 10,000;

(C) the stilbene compound is selected from the group consisting of Blancophor BBH, Calcofluor White M2R, Phorwite AR, and mixtures thereof;

(D) the pesticidal agent is a biological insecticide selected from the group consisting of

(1) *Melolontha melolontha* EPV, *Amsacta moorei* EPB, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof;

(2) *Lymantria dispar* NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou* NPV, an *Autographa californica* NPV selected from the group consisting of V8vEFTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8 and AcMNPVPx1, and mixtures thereof;

(3) *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof;

(4) *Togaviridae, Bunyaviridae, Flaviviridae*, and mixtures thereof;

(5) *Reoviridae, Birnaviridae*, and mixtures thereof;

(6) *Picornaviridae, Tetraviridae, Nodaviridae*, and mixtures thereof;

(7) *Bacillus thuringiensis, Bacillus lentimorbus, Bacillus cereus, Bacillus popilliae, Photorhabdus luminescens, Xeorhabdus nematophilus*, and mixtures thereof; and

(8) *Beauveria bassiana, Entomophthora spp., Metarrhizium anisopliae*, and mixtures thereof;

wherein the amount of base added is well below the amount required to fully solubilize the copolymer such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts; and

wherein the mixture's pH is less than the polymer's solubilization; and

(b) drying the mixture to produce a pesticidal matrix.

100. (newly added) A pesticidal matrix prepared according to the process of claim 99, comprising, on a percentage-by-weight basis of the matrix, from about 1% to about 50% of a pesticidal agent, from about 5% to about 50% of a pH-dependent polymer, from about 0% to about 25% of a plasticizer, from about 0% to about 30% of a ultraviolet protector, from about 0% to about 75% of a activity enhancer, and from about 0% to about 15% of a glidant.

COPY OF ALL CLAIMS

36. (three times amended) A process comprising

(a) preparing an aqueous mixture containing a pesticidal agent, a pH-dependent polymer, a base, optionally a plasticizer, optionally an ultraviolet protector, optionally an activity enhancer, optionally a glidant, and water;

wherein the polymer

(1) contains ester groups and free carboxylic acid groups,

(2) is partially solubilized due to the action of the base, and

(3) has solubilization pH greater than about pH 5.5;

wherein the amount of base added is well below the amount required to fully solubilize the copolymer such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts;

wherein the mixture's pH is less than the polymer's solubilization pH; and

(b) drying the mixture to produce a pesticidal matrix.

39. A process as described in claim 36, wherein the polymer is soluble above about pH 7.

40. A process as described in claim 39, wherein the base is present in an amount less than that required to fully solubilize the polymer.

41. A process as described in claim 40, wherein the base is a hydroxide compound.

42. A process as described in claim 41, wherein the compound is selected from the group consisting of ammonium hydroxide, an alkali metal hydroxide, an alkaline earth metal hydroxide, and mixtures thereof.

43. A process as described in claim 42, wherein the compound is ammonium hydroxide.

44. A process as described in claim 36, wherein the mixture does not contain the plasticizer, the ultraviolet protector, the activity enhancer, and the glidant.

45. A process as described in claim 36, wherein the mixture contains the

plasticizer.

46. A process as described in claim 36, wherein the mixture contains the ultraviolet protector.

47. A process as described in claim 36, wherein the mixture contains the activity enhancer.

48. A process as described in claim 36, wherein the mixture contains the glidant.

49. A process as described in claim 36, wherein the mixture contains the plasticizer and the ultraviolet protector.

50. A process as described in claim 36, wherein the mixture contains the plasticizer and the activity enhancer.

51. A process as described in claim 36, wherein the mixture contains the plasticizer and the glidant.

52. A process as described in claim 36, wherein the mixture contains the ultraviolet protector and the activity enhancer.

53. A process as described in claim 36, wherein the mixture contains the ultraviolet protector and the glidant.

54. A process as described in claim 36, wherein the mixture contains the activity enhancer and the glidant.

55. A process as described in claim 36, wherein the mixture contains the plasticizer, the ultraviolet protector, and the activity enhancer.

56. A process as described in claim 36, wherein the mixture contains the ultraviolet protector, the activity enhancer, and the glidant.

57. A process as described in claim 36, wherein the mixture contains the plasticizer, the activity enhancer, and the glidant.

58. A process as described in claim 36, wherein the mixture contains the plasticizer, the ultraviolet protector, and the glidant.

59. A process as described in claim 36, wherein the mixture contains the

plasticizer, the ultraviolet protector, the activity enhancer, and the glidant.

60. A process as described in claim 36, wherein the pesticidal agent is selected from the group consisting of an insecticide, an acaricide, a nematicide, a fungicide, a herbicide, and mixtures thereof.

61. A process as described in claim 60, wherein the pesticidal agent is an insecticide selected from the group consisting of a chemical insecticide, a biological insecticide, and mixtures thereof.

63. A process as described in claim 61, wherein the insecticide is a biological insecticide.

64. A process as described in claim 63, wherein the biological insecticide is a naturally-occurring or a genetically-modified variety of an insect biological control agent.

65. (twice amended) A process as described in claim 64, wherein the insect biological control agent is selected from the group consisting of a viral pathogen, a bacterial pathogen, a fungal pathogen, and mixtures thereof.

66. A process as described in claim 65, wherein the insect biological control agent is a viral pathogen selected from the group consisting of a DNA virus, a RNA virus, an unclassified insect virus, and mixtures thereof.

67. (amended) A process as described in claim 66, wherein the viral pathogen is a DNA virus selected from the group consisting of a double stranded enveloped DNA virus, a double stranded nonenveloped DNA virus, a single stranded DNA virus, and mixtures thereof.

68. A process as described in claim 67, wherein the DNA virus is a double stranded enveloped DNA virus selected from the group consisting of *Entomopoxvirinae* and *Eubaculovirinae*.

69. A process as described in claim 68, wherein the double stranded envelope DNA virus is *Entomopoxvirinae*.

70. A process as described in claim 69, wherein the double stranded enveloped DNA virus *Entomopoxvirinae* is an entomopox virus (EPV) selected from the

group consisting of *Melolontha melolontha* EPV, *Amsacta moorei* EPV, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof.

71. A process as described in claim 68, wherein the double stranded enveloped DNA virus is *Eubaculovirinae*.

72. A process as described in claim 71, wherein the double stranded enveloped DNA virus *Eubaculovirinae* is selected from the group consisting of

(1) a nuclear polyhedrosis virus (NPV) of *Lymantria dispar* NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou* NPV, an *Autographa californica* NPV selected from the group consisting of V8v EGTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8, AcMNPV Px1, and mixtures thereof; and

(2) a granulosis virus (GV) of *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof.

73. A process as described in claim 67, wherein the DNA virus is a double stranded nonenveloped DNA virus.

74. A process as described in claim 67, wherein the DNA virus is a single stranded nonenveloped DNA virus.

75. A process as described in claim 66, wherein the viral pathogen is a RNA virus selected from the group consisting of a double stranded enveloped RNA virus, a double stranded nonenveloped RNA virus, a single stranded RNA virus, and mixtures thereof.

76. A process as described in claim 75, wherein the RNA virus is a double stranded enveloped RNA virus selected from the group consisting of *Togaviridae*, *Bunyaviridae*, *Flaviviridae*, and mixtures thereof.

77. A process as described in claim 75, wherein the RNA virus is a double

stranded nonenveloped RNA virus selected from the group consisting of *Reoviridae*, *Birnaviridae*, and mixtures thereof.

78. A process as described in claim 75, wherein the RNA virus is a single stranded nonenveloped RNA virus selected from the group consisting of *Picornaviridae*, *Tetraviridae*, *Nodaviridae*, and mixtures thereof.

81. A process as described in claim 36, wherein

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer, a methyl methacrylate/methacrylic acid copolymer, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of a poly(ethylene glycol), a poly(propylene glycol), a citric acid ester, diethyl phthalate, dibutyl phthalate, castor oil, triacetin, and mixtures thereof;

(c) the ultraviolet protector is selected from the group consisting of carbon black, a benzophenone, a dye, titanium dioxide, and mixtures thereof;

(d) the activity enhancer is a stilbene compound; and

(e) the glidant is selected from the group consisting of talc, magnesium stearate, calcium stearate, calcium sulfate, and mixtures thereof.

82. A process as described in claim 36, wherein

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of about 1:1, a methyl methacrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer having monomers in a ratio of from about 1:5:2 to about 3:7:3, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of triethyl citrate and a poly(ethylene glycol) having an average molecular weight of about 1,000 to 10,000; and

(c) the stilbene compound is selected from the group consisting of Blancophor BBH,

Calcofluor White M2R, Phorwite AR, and mixtures thereof.

83. A process as described in claim 36, wherein the polymer is a methyl methacrylate/methacrylic acid copolymer.

84. A process as described in claim 36, wherein the mixture is spray dried.

85. A process as described in claim 36, wherein the matrix has a particle size of less than about 20 μm.

86. A process as described in claim 58, wherein the matrix has a particle size of from about 2 μm to about 10 μm.

87. A process as described in claim 36, wherein the matrix comprises, on a percentage-weight-basis of the matrix, from about 1% to about 50% of the pesticidal agent, from about 5% to about 50% of the polymer, from about 0% to about 25% of the plasticizer, from about 0% to about 30% of the ultraviolet protector, from about 0% to about 75% of the activity enhancer, and from about 0% to about 15% of the glidant.

88. (four times amended) A pesticidal matrix comprising on a percentage-weight-basis of the matrix, from about 1% to about 50% of a pesticidal agent, from about 5% to about 50% of a pH-dependent polymer, from about 0% to about 25% of a plasticizer, from about 0% to about 30% of a ultraviolet protector, from about 0% to about 75% of a activity enhancer, and from about 0% to about 15% of a glidant; wherein the polymer contains ester groups and free carboxylic acid groups, is partially solubilized due to the action of a base, wherein the amount of base added is well below the amount required to fully solubilize the copolymer, such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts, and wherein the polymer has a solubilization pH greater than about pH 5.5.

89. A pesticidal matrix as described in claim 88, wherein the matrix comprises, on a percentage-weight-basis of the matrix, from about 5% to about 35% of the pesticidal agent, from about 10% to about 45% of the polymer, from about 0% to about 25% of the plasticizer, from about 0% to about 20% of the ultraviolet protector, from about 0% to about 45% of the activity enhancer, and from about 0% to about 10% of

the glidant.

90. A pesticidal matrix as described in claim 88, wherein

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer, a methyl methacrylate/methacrylic acid copolymer, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of a poly(ethylene glycol), a poly(propylene glycol), a citric acid ester, diethyl phthalate, dibutyl phthalate, castor oil, triacetin, and mixtures thereof;

(c) the ultraviolet protector is selected from the group consisting of carbon black, a benzophenone, a dye, titanium dioxide, and mixtures thereof;

(d) the activity enhancer is a stilbene compound; and

(e) the glidant is selected from the group consisting of talc, magnesium stearate, calcium stearate, calcium sulfate, and mixtures thereof.

91. A pesticidal matrix as described in claim 90, wherein

(a) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of about 1:1, a methyl methacrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/methyl methacrylate copolymer having monomers in a ratio of from about 1:5:2 to about 3:7:3, and mixtures thereof;

(b) the plasticizer is selected from the group consisting of triethyl citrate and a poly(ethylene glycol) having an average molecular weight of about 1,000 to 10,000; and

(c) the stilbene compound is selected from the group consisting of Blacophor BBH, Calcofluor White M2R, Phorwite AR, and mixtures thereof.

92. A pesticidal matrix as described in claim 88, wherein the pesticidal agent is selected from the group consisting of an insecticide, an acaricide, a nematicide, a fungicide, a herbicide, and mixtures thereof.

93. A pesticidal matrix as described in claim 92, wherein the pesticidal agent is an insecticide selected from the group consisting of a chemical insecticide, a biological insecticide, and mixtures thereof.

95. A pesticidal matrix as described in claim 93, wherein the insecticide is a biological insecticide selected from the group consisting of a viral pathogen, a bacterial pathogen, a fungal pathogen, and mixtures thereof.

96. A pesticidal matrix as described in claim 95, wherein

(a) the biological insecticide is selected from the group consisting of

(1) *Melolontha melolontha* EPV, *Amsacta moorei* EPV, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof;

(2) *Lymantria dispar* NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou* NPV, an *Autographa californica* NPV selected from the group consisting of V8vEFTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8 and AcMNPVPx1, and mixtures thereof;

(3) *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof;

(4) *Togaviridae, Bunyaviridae, Flaviviridae*, and mixtures thereof;

(5) *Reoviridae, Birnaviridae*, and mixtures thereof;

(6) *Picornaviridae, Tetraviridae, Nodaviridae*, and mixtures thereof;

(7) *Bacillus thuringiensis, Bacillus lentimorbus, Bacillus cereus, Bacillus popilliae, Photorhabdus luminescens, Xeorhabdus nematophilus*, and mixtures thereof; and

(8) *Beauveria bassiana, Entomophthora spp., Metarrhizium anisopliae*, and mixtures thereof

97. A pesticidal matrix produced by a process as described in claim 36.

98. A process for improving the residual control of a pest comprising applying to the locus of the pest a pesticidally-effective amount of a pesticidal matrix as described in claim 97.

99. (newly added) A process comprising

(a) preparing an aqueous mixture containing a pesticidal agent, a pH-dependent polymer, a base, optionally a plasticizer, optionally an ultraviolet protector, optionally an activity enhancer, optionally a glidant, and water;
wherein

(A) the polymer is selected from the group consisting of an ethyl acrylate/methacrylic acid copolymer having free carboxylic acid groups and ester groups in a ratio of from about 1:1 to about 1:2, a methacrylic acid/methyl acrylate/ methyl methacrylate copolymer having monomers in a ratio of from about 1:5:2 to about 3:7:3, and mixtures thereof;

(B) the plasticizer is selected from the group consisting of triethyl citrate and a poly(ethylene glycol) having an average molecular weight of about 1,000 to 10,000;

(C) the stilbene compound is selected from the group consisting of Blancophor BBH, Calcofluor White M2R, Phorwite AR, and mixtures thereof;

(D) the pesticidal agent is a biological insecticide selected from the group consisting of

(1) *Melolontha melolontha* EPV, *Amsacta moorei* EPB, *Locusta migratoria* EPV, *Melanoplus sanguinipes* EPV, *Schistocerca gregaria* EPV, *Aedes aegypti* EPV, *Chironomus luridus* EPV, and mixtures thereof;

(2) *Lymantria dispar* NPV, *Anagrapha falcifera* NPV, *Spodoptera littoralis* NPV, *Mamestra brassicae* NPV, *Choristoneura fumiferana* NPV, *Trichoplusia ni* NPV, *Heliocoverpa zea* NPV, *Rachiplusia ou*

NPV, an *Autographa californica* NPV selected from the group consisting of V8vEFTDEL, V8vEGTDEL-AaIT, AcMNPV E2, AcMNPV L1, AcMNPV V8 and AcMNPVPx1, and mixtures thereof;

(3) *Cydia pomonella* GV, *Pieris brassicae* GV, *Trichoplusia ni* GV, *Artogeia rapae* GV, *Plodia interpunctella* GV, and mixtures thereof;

(4) *Togaviridae, Bunyaviridae, Flaviviridae*, and mixtures thereof;

(5) *Reoviridae, Birnaviridae*, and mixtures thereof;

(6) *Picornaviridae, Tetraviridae, Nodaviridae*, and mixtures thereof;

(7) *Bacillus thuringiensis, Bacillus lentimorbus, Bacillus cereus, Bacillus popilliae, Photorhabdus luminescens, Xeorhabdus nematophilus*, and mixtures thereof; and

(8) *Beauveria bassiana, Entomophthora spp., Metarrhizium anisopliae*, and mixtures thereof;

wherein the amount of base added is well below the amount required to fully solubilize the copolymer such that no more than 10% of the free carboxylic acid groups of the copolymer are converted to salts; and

wherein the mixture's pH is less than the polymer's solubilization; and

(b) drying the mixture to produce a pesticidal matrix.

100. (newly added) A pesticidal matrix prepared according to the process of claim 99, comprising, on a percentage-by-weight basis of the matrix, from about 1% to about 50% of a pesticidal agent, from about 5% to about 50% of a pH-dependent polymer, from about 0% to about 25% of a plasticizer, from about 0% to about 30% of a ultraviolet protector, from about 0% to about 75% of a activity enhancer, and from about 0% to about 15% of a glidant.